

PLAN A COMMUNITY

Objectives:

Using all of the knowledge gained in the hydrology program, students will:

- plan a working community considering all aspects of the program
- analyze how complex water management can be and how important it is to consider all sides of a management issue.

Materials:

- Large paper for community plan
- Colored pencils, markers, pens, etc
- Knowledge of hydrology unit



Procedure:

1. The students are going to plan an entire community taking into account everything they have learned in the hydrology unit.
2. Break them into small groups. Have each group begin to think about the earliest aspects of the unit, basic water, and rain. What are the properties of water? How much rain does their community get each year? This community is located in the north central part of the US. There are rivers or lakes close by. Describe the topography of the area based on your knowledge of the north central part of the country. What might be underground? Is this an area where there are sinkholes? What kind of rock is under them? Use maps and the internet to answer these questions when you decide the specific area you would like your community to be.
3. How many people live in the community? Assume you will have close to the number of people that the towns in the surrounding area have. Where will the people get their water? Will they use wells or a public system? Are there rules about water rights in the community (no oil changing in your drive way, no watering your lawn, car wash limitations, etc). Create rules you think would help you manage your community. Is there any tourist attraction nearby? Will this travel effect the water quality of your community? If so, what restrictions could you impose? Could there be specific times of the day to get water for tourists? Maybe there are only a few specific places to dump wastewater. How many motels will you need for the tourists? Where will you put the motels in relation to the schools, the emergency places, a community park, the river, etc?
4. What kinds of industries will the town have? What about schools, hospitals, fire department, restaurants, churches, etc.? Where will you put these in relation to each other?
5. Plan your community on a large piece of paper by drawing a picture including necessary buildings (fire department, schools, hospital) as well as businesses (a shoe store, restaurants, salon, gas stations, antique shop, etc), recreational areas (YMCA, city park, scenic walkway, track, etc), residential areas, etc. What kinds of recreation are available (ski resort, boating, hiking, biking, etc)? Remember that every restaurant, large store, church, gas station, hospital and home must have restrooms and full water capabilities. Thinking of all of the businesses and buildings, where will these people get water? How much water will they use? How will this water system be connected to each building and

then to a treatment facility and then to a river? Will it have to be regulated? How will the community balance water use to make sure all involved have enough water and that it is being properly treated?

6. Is this an agricultural community? If not, where will you get your food? Is it trucked into the area?
7. If it is agricultural will this have an impact on the watershed? If so, how will the pesticide use or livestock affect the water supply? Do you have to irrigate? If so, how will you determine the appropriate amount of water to use?
8. Is this an industrial area? Are there major highways that go by your community that could have an effect? Is this a major traffic route for hazardous wastes? Are there accidents or oil spills on the roadway? What about regular runoff from vehicle use? Does the amount of tourist travel affect this pollution? Are you close to a major city? Is it upstream or downstream? Will the city's actions affect you? Will your actions affect the city? Could the air pollution from the city cause any damage?
9. In the residential areas, how will you clean the water for personal use? What will be the most effective and efficient way to ensure that your community has good drinking water? Will you build a wastewater treatment plant? What cost will this have to the community? How often will the area's water be tested to be sure that it is safe? Who will do the testing? Will you accept the government standards for safe water or will you make them stricter for your community's health?
10. Are these issues we should all be thinking about in our own communities today? Who makes the decisions for our community? Is this someone we elect? Is this done by a board who has the right goals and ideas in mind? Is this someone we can talk to and share suggestions with? For every community, there is someone who has thought about all of these questions and has decided a way to make the community work. Would you be up to that task??
11. Is there a comprehensive or water plan for your community? Most large towns or counties or states have water plans. Try to get a copy of the water plan for your area. You might try USGS, using sites listed in the Watershed section. How does your plan compare to the USGS plan? Which do you feel is more effective? Which plan would you rather use?
12. Have the city or county planner, city official, or a USGS representative talk with you class to answer questions and explain how decisions are made in your area.